Certain final corrections, which had the same values for all trials, were made to the mean value of J, already given. These were introduced on the following various counts :—

I. Length of the brake lever (0·00042).
II. Salts dissolved in Manchester water (0·00003).
III. Air dissolved in water used in the trials (− 0·00021).
IV. Reduction of weighings to vacuo (− 0·00120).
V. Varying specific heat of water (− 0·00006).
VI. Pressure on thermometer bulbs (− 0·00037).
VII. Work done against gravity (0·00007).
VIII. Engagement of counter (0·00001).

Their total effect was to introduce a correction factor of (1 − 0·00125).

The mean corrected value of the specific heat of water between freezing and boiling points, as measured in mechanical units at Manchester, is found to be 776·94.

THE INTERNATIONAL GEOLOGICAL CONGRESS IN RUSSIA.

THE International Geological Congress may be said to come of age this year, for it was founded at Philadelphia in 1876, at a meeting held under the presidency of the veteran James Hall. The first organised session was held at Paris in 1878, and since then meetings have taken place at Bologna, Berlin, London, Washington, and Zürich. The seventh session is to be held at St. Petersburg, with Prof A. Karpinsky as President.

The ordinary meetings of the Congress will be held in the rooms of the Imperial Academy of Sciences at St. Petersburg. There will be a preliminary assembly of the members on August 28, the formal opening will take place on the following day, and the meeting will terminate on September 4. According to the Russian Calendar these dates will be twelve days earlier, namelv. August 16, 17, and 23.

The meetings will extend over eight hours. From 9 till 10 a.m. the Committees of the Congress will deliberate; from 10 till 2 p.m. there will be discussions on questions proposed in the programme of the Organising Committee. One hour is then set aside for visits to museums and to the exhibition of maps, sections, books, specimens and instruments—possibly some members may then take the opportunity of obtaining lunch. From 3 to 5 o'clock papers of a general character will be read, and these will be so arranged that only one branch of geological science will be discussed each day.

The Organising Committee will reopen the subject of the unification of geological nomenclature. The larger divisions of the earth's history must be based on general palæontological characters, and in defining the several systems attention will be specially given to the study of pelagic life and the evidences of organic evolution. In order that a system be well established it must be capable of subdivision into stages characterised by well-marked pelagic faunas, and these should have a European or equivalent value. It is recognised that sub-stages have only a regional value, while minor divisions have but a local character, and with these the Congress does not deal. The divisions, in short, which the assembly will be called upon to discuss are those of geological time, based on the occurrence of successive groups and zones of fossils; the purely stratigraphical divisions are essentially regional or local, and they may reasonably be left for each country to fix according to its own necessities; for they are all important in the interpretation of the structure of a district, in determining its economic resources, and in explaining the origin of its scenery. On the other hand, when we seek to trace out the history of the great changes which the earth at large has undergone, the more comprehensive life-divisions are all important; and these only can be universally applied, and, we hope, universally adopted. It is true that life-divisions are no more to be rigidly defined than are stratigraphical divisions in the rocks, but fossils are the only guides for correlating the formations in countries far apart. There should be no serious disagreement among geologists, at any rate, with regard to the principles of correlation; and there is no reason why, after full and friendly discussion, a particular nomenclature should not be generally accepted. It need not interfere with our local divisions, any more than great chronological terms, if applied to human history in general, would interfere with our own time-divisions marked by the reigns of successive monarchs.

The Organising Committee will also deal with the subject of petrographic nomenclature, in the hope of reducing the number of terms now used, and of preventing unnecessary names being introduced. In petrology, as in palæontology, one is nowadays in constant need of a dictionary or glossary, or table of synonyms, to understand the various names of rocks or rock-structures and fossils.

The scheme for Excursions in connection with the Congress is an elaborate one. There will be excursions both before and after the ordinary meeting, and those who have time and money will have grand opportunities of visiting many parts of the Russian empire in Europe.

Prior to the Congress there will be three excursions; namely, to the Ural regions, to Esthonia, and to Finland. The Ural excursion is timed to take place between July 28 and August 27. There will be a general gathering of the party at Moscow on July 29, and those who join are advised to take thick boots, warm clothing, and waterproof cloaks, for there will be rough walking as well as long journeys in open carriages and on horseback. Messrs. Nikitin, Tschernyschew, Arzruni, Karpinsky, and Stuckenberg will act as leaders. The party will take train to Riazan, and thence journeying to Syzran, on the Volga, they will cross Jurassic, Cretaceous, and Tertiary strata. Thence from Samara to Oufa, Permian and Triassic rocks will be traversed, while onwards to the Ural mountains the party will pass over Carboniferous, Devonian, and Siluro-Cambrian strata, which present evidences of considerable metamorphism, and which, together with various schists, are penetrated by numerous eruptive rocks. The region is famed for its metalliferous deposits, and various mines in rocks bearing gold, copper, and manganese will be visited, as also will be the Imperial stone-cutting works at Ekatherinebourg. The return journey will be made by Perm, Kazan, and Nijni-Novgorod.

The excursion into Esthonia (August 13 to 27) under the direction of M. Schmidt, will be by rail to Reval on the Gulf of Finland, and then a visit will be paid to the Isle of Dago, when attention will be given to the fossiliferous Upper and Lower Silurian rocks.

The excursion to Finland will be made under the guidance of M. W. Ramsáy. The members will assemble at Helsingfors on August 21, and return to St. Petersburg on August 28. Tammerfors and Lavia will be reached, and attention will be directed to the glacial phenomena and the various crystalline rocks.

After the meeting of the Congress is over, the principal excursion will be to the Caucasus, leaving St. Petersburg on September 5, and arriving at Moscow on the following day. The excursion party will then be divided into three sections, A, B, and C. Section A will be conducted by Messrs. Nikitin, Gourow, Tschernyschew, Loutougin, Rouguéwitsch, and Konchin. Leaving Moscow, and travelling by Podolsk, the route will be over Jurassic, Carboniferous and Devonian rocks, and on to the Cretaceous strata of Koursk and Kharkow. Thence the

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party will proceed to Rostow, at the head of the Sea of Azov, examining a mercury-mine and certain mineral springs, and ultimately reaching Wladikavkaz, on the northern side of the Caucasus mountains. Section B will start, under the guidance of Messrs. Pavlow and Amalitzky, from Moscow to Nijni-Novgorod, across Jurassic and Triassic formations to the Cretaceous rocks of Simbirsk on the Volga. Journeying southwards they will visit asphalt quarries, and by means of steamer and railway they will proceed along the plains of the Volga and the borders of the Kirghiz Steppes to Astrakhan and Wladikavkaz. Section C will be under the direction of M. Sokolow, and will journey to Kiew on the Dnieper, paying especial attention to the Tertiary and Post-Tertiary deposits. Following the river to Alexandrovsk, the party will ultimately join the two other sections at Wladikavkaz by way of Rostow.

Thus united the whole party will proceed across the mountainous country to Tiflis, under the direction of M. Loewinson-Lessing, some few members separating for a while to examine a glacier under the guidance of M. Kolenko. Tertiary, Cretaceous, Jurassic, and metamorphic rocks will be seen. From Tiflis all will proceed to Bakou, on the borders of the Caspian, and thence separating into two portions, they will traverse the mountainous region from east to west, and unite again at Rion. Some may spend a week in the Caucasus, examining the Mamisson glacier; others will have an opportunity of visiting Mount Ararat.

Those who desire to still further continue their field-studies among Cretaceous and Jurassic rocks, may take part in a general excursion into the Crimea. They will proceed by steamer from Batoum to Kertch, and eventually, on October 5, there will be a reunion of all the remaining excursionists at Sébastopol. Thus will terminate the great programme of expeditions planned by the geologists of Russia. H. B. W.

THE NEW LABORATORIES AT GUY'S HOSPITAL.

THE new laboratories which have been erected at Guy's Hospital at the expense of the staff of the medical school, and have entailed an expenditure of about 12,000*l.*, were opened by the Prince of Wales on Wednesday in last week. The buildings occupy about one-third of the whole structure which is contemplated, and a further sum of 35,000*l.* will be required to complete the scheme. The entire building is designed to provide under one roof all the accommodation required by the school in all branches of the medical curriculum. The part of the building now opened contains a well-arranged lecture theatre capable of seating four hundred persons, and beneath it are three dark rooms. The first of these is designed for the reception of the spectrophotometer, polarimeter, and spectroscope, for the use of those engaged in work with them. The other two rooms are intended for galvanometric and photographic work. Other parts of the building are occupied by the laboratories and preparation room for physiological and pathological chemistry, a balance room, a calorimeter room, and a gas room. On the top floor the whole of the front of the building is devoted to the laboratory and preparation room for normal and morbid histology. Large classes can be accommodated, and the claims of investigation have received ample consideration.

An address of welcome was read to the Prince of Wales by Mr. Howse, the senior surgeon, and Dr. Pye-Smith, senior physician, described the objects of the new building in the following words:—

Your Royal Highnesses, my Lords, Ladies, and Gentlemen,—I have been asked by my colleagues, the lecturers, demonstrators, and tutors of this school of medicine to state very shortly the use and object of the building in which we stand.

While in every civilised country, except England and the United States, the training of physicians and surgeons is provided for by the Government as part of its duties, here the profession provides for itself and for the public. The schools of medicine in London have formed themselves around the great hospitals, and have only gradually acquired their present importance and repute.

Apart from practical instruction in the wards of the hospital, some knowledge of natural science has always been included in the preparation for this liberal profession. Physicians have always been botanists and chemists, surgeons have always been anatomists; nor need we look far for proofs that the highest attainments in scholarship and mathematics are admirable training for pathology.

During the last sixty years, great has been the development of these preliminary scientific studies, the indispensable foundation of rational, honourable and helpful medicine. We have now not only able lecturers on physics, on chemistry, and on biology, but well-equipped laboratories for each of these subjects, in which our students become practically familiar with scientific facts. We have twice rebuilt or greatly enlarged our museums and laboratories for *physiology*, for *clinical chemistry*, for *histology*, and for the new science of *bacteriology*. But, again, as our numbers increase and the progress of science goes on, we must pull down our barns and build greater. In medical science, as in a still more important discipline, the Augustinian saying is true, *Qui satis dixerit, perditus est.* We must go on, if we are not to fall back.

Accordingly, after repeatedly considering various plans for enlarging and remodelling the old museum and laboratories, we determined that none of them were satisfactory; and that we must erect a new building for the important department of physiology; one not comparable to the magnificent palaces which are called "Institutes" at Berlin and Strassburg, but such as may rank with the laboratories of our friendly rivals, St. Bartholomew's, St. Thomas's, and the other schools of London, of Cambridge, and of Edinburgh, fitted for the best possible teaching and the most advanced researches.

This part of the future range of museums and class-rooms is now completed. Immense labour has been bestowed upon it. Similar laboratories in this kingdom, and on the continent, have been visited and studied by our lecturers, and the result is what we have every reason to believe will be sufficient for another fifty years. Two names among many to whom we are deeply indebted demand particular mention—those of the architect, Mr. Woodd, and of Dr. Shaw, the Dean of the Medical School.

It is only right to explain how the necessary funds were raised.

We all know the grievous deficiency of rents which have compelled the Governors of Guy's Hospital to close some of their wards.

We know too, and shall never forget, how you, Sir, came to their help, and how, by your generous and practical aid, the prospects of further crippling of the charity were banished, and replaced by a hope that some day its closed wards might be reopened to the public.

The treasurer of the hospital could not give, and the medical school could never ask for, help from the hospital funds. Every pound given to Guy's Hospital is devoted to the direct relief of the patients. The school does not receive from, but gives to the hospital, with which its prosperity and almost its existence are united.

It is needless to say that the Government does not help medical science as it does on the continent, and our rich men are only beginning to learn to devote their wealth to founding colleges and laboratories and observatories, like those which do honour to our kinsmen across the Atlantic.

Only one resource remained open: we determined to appeal—to ourselves. We made a collection; all giving something as he was able, and with the money thus subscribed this physiological institute was built.

Here physiology will be zealously and efficiently taught, and fresh knowledge will be acquired. The old laboratories, where Sir Wm. Gull, Dr. Pavy, Mr. Golding Bird, and the late Dr. Wooldridge worked, will hand over a good tradition of industry, intelligence, and zeal to their successors, and the benefit will not be only for our students, but for the whole community.

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